Third United Nations International Conference on the Peaceful Uses of Atomic Energy

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Abstract

NUCLEAR POWER IN THE UNITED KINGDOM

by

* Sir William Penney, K.B.E., F.R.S.

The paper describes progress with the U.K. nuclear power programme and provisional plans for its extension into the 1970s.

2. At the time of the second Geneva Conference in 1958, the application of nuclear power was in a comparatively early stage in most countries. The U.K. now has several nuclear power stations operating and by the end of this decade will have about 5000 MWE of nuclear power.

3. Reactor development in the U.K. has been carried from the successful operation of Calder Hall in 1957, through the programme of magnox stations to the operation of the Advanced Gas-Cooled Reactor prototype at Windscale. It includes the co-operative development of the High Temperature Gas-Cooled reactor system in the O.E.C.D. DRAGON Project. The U.K. programme is based on general research on a wide front and development has been broadened to include a major water moderated project (Steam Generating Heavy Water reactor). Good progress has been made with the fast reactor which is being developed with the aim of achieving economic power and high utilisation of natural uranium. Research is also in hand on plutonium enrichment in thermal reactors.

4. The paper discusses questions which have to be answered in making economic assessments. Given the characteristics of nuclear power of low running costs coupled with relatively high capital costs, the assessments are dependent on the economic circumstances and characteristics of the generating system in the country concerned and on the degree of caution applied. These together determine the rates of capital charges and the ground rules assumed. The economic prospects forecast for nuclear power or for individual systems will accordingly vary from country to country.

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* Leader of the United Kingdom Delegation

5. The paper discusses the situation in the U.K. where nuclear power should be economically competitive with conventional power in the 1970's.

6. The Third Geneva Conference has been well timed to show that the long term benefits of introducing nuclear fuels will be realised increasingly as the world demand for electricity increases and as present development programmes bear fruit.